

In the claims:

1-4. (Canceled)

5. (Currently Amended) The method according to any one of claims 24-27 ~~4 through 4~~, wherein the detection and/or discrimination step includes comparing results obtained from measuring at least one of electrical, magnetic and optical changes to the surface of the biochip before hybridizing the biochemical specimen ~~the hybridization operation~~ as a standard with results of the biochip following each step.

6. (Currently Amended) The method ~~for detecting a biochemical reactant~~ according to any one of claims 24-27 ~~1 through 4~~, wherein the detection and/or discrimination step includes measuring, before and after hybridizing the biochemical specimen ~~the hybridization operation~~, at least one of electrical, magnetic and optical changes to the surface of the biochip, and comparing these results.

7. (Currently Amended) The method according to any one of claims 24-27 ~~4 through 4~~, wherein the detection and/or discrimination step includes measuring, before hybridizing the biochemical specimen ~~the hybridization operation~~, at least one of electrical, magnetic and optical changes to the surface of a biochip having a plurality of electrodes, and relative amounts of the nucleic acids probe on each electrode are calculated in advance and used as a corrective reference for measured values after each step.

8. (Currently Amended) The method for according to any one of claims 24-27 ~~4 through 4~~, wherein pre-modifying a pre-modification with the a label of the nucleic acid probe or the biochemical specimen is a multi-stage modification of two or more stages in which a second label is added targeting a first label previously attached.

9. (Currently Amended) The method according to any one of claims 24-27 ~~4 through 4~~, wherein modifying the nucleic acid probe or the biochemical specimen with ~~the~~ a label is a multi-stage modification in two or more stages in which a modification with a first label is followed by a modification with a second label targeting the first label.

10. (Cancelled)

11. (Currently Amended) The method according to any one of claims 24-27 ~~4 through 4~~, wherein detecting and/or discriminating electrical changes on the surface of ~~the~~ a biochip is at least one of changes in current values, voltage values or resistance values on ~~the~~ a biochip or ~~the~~ electrode, and changes in capacitance on the surface of ~~the~~ a biochip.

12. (Currently Amended) The method according to any one of claims 24-27 ~~4 through 4~~, wherein detecting and/or discriminating as electrical and magnetic changes on the surface of ~~the~~ a biochip comprises the steps of:

detecting and/or discriminating at least one of changes in current values, voltage values or resistance values on ~~the~~ a biochip or ~~the~~ electrode, and changes in capacitance on the surface of ~~the~~ a biochip; and

magnetically detecting and/or discriminating a signal from the double-chained complex ~~forming a double chain~~.

13. (Currently Amended) The method according to any one of claims 24-27 ~~4 through 4~~, wherein detecting and/or discriminating as electrical and optical changes on the surface of ~~the~~ a biochip comprises the steps of:

detecting and/or discriminating at least one of changes in current values, voltage values or resistance values on ~~the~~ a biochip or ~~the~~ electrode, and changes in capacitance on the surface of ~~the~~ a biochip; and

optically detecting and/or discriminating a signal from the double-chained complex ~~forming a double chain~~.

14. (Currently Amended) The method according to any one of claims 24-27 ~~4 through 4~~, wherein detecting and/or discriminating ~~as~~ electrical, magnetic and optical changes on the surface of the ~~a~~ biochip comprises the steps of:

detecting and/or discriminating at least one of changes in current values, voltage values or resistance values on the ~~a~~ biochip or electrode, and changes in capacitance on the surface of the ~~a~~ biochip; and

magnetically and optically detecting and/or discriminating signals from the double-chained complex ~~forming a double chain~~.

15-22. (Cancelled)

23. (Currently Amended) The method according to claims 25 or 27 ~~2 or 4~~, wherein the detection and/or discrimination step includes measuring, before and after hybridizing the biochemical specimen ~~the hybridization operation~~ and/or before and after ~~the modification operation~~ modifying with a label, at least one of electrical, magnetic and optical changes to the surface of the biochip, and comparing these results.

24. (New). A method for detecting a biochemical reactant comprising the steps of:

hybridizing a biochemical specimen with a loop-structured nucleic acid probe on a biochip to form a double-chained complex, wherein

a) said loop-structured nucleic acid probe is arrayed on one or more electrodes provided on a surface of a substrate or a substrate analog,

b) a free end of said loop-structured nucleic acid probe is not fixed to the surface of the substrate or the substrate analog, or

c) a principal part of said loop-structured nucleic acid probe which binds complementarily with a biochemical specimen is located on a side of the substrate on or near a surface of the substrate or the substrate analog, and

d) said loop-structured nucleic acid probe is pre-modified with a label selected from a group consisting of magnetic particles, ceramic fine particles, and semiconductors; and

detecting and/or discriminating said double-chained complex by means of at least one of electrical, magnetic, and optical changes on the surface of the biochip.

25. (New) The method of claim 24 further comprising a step of modifying with a label either during or after hybridization one or both of the biochemical specimen and the loop-structured probe nucleic acid, wherein said label is selected from the group consisting of magnetic particles, ceramic fine particles, and semiconductors, and wherein said modifying step takes place before the detecting/discrimination step.

26. (New) A method for detecting a biochemical reactant comprising the steps of:

hybridizing a biochemical specimen with a loop-structured nucleic acid probe on a biochip to form a double-chained complex, wherein

a) said loop-structured nucleic acid probe is arrayed on one or more electrodes provided on a surface of a substrate or a substrate analog,

b) a free end of said loop-structured nucleic acid probe is not fixed to the surface of the substrate or the substrate analog, or

c) a principal part of said loop-structured nucleic acid probe which binds complementarily with a biochemical specimen is located on a side of the substrate on or near the surface of the substrate or the substrate analog, and

d) said biochemical specimen is pre-modified with a label selected from a group consisting of magnetic particles, ceramic fine particles, and semiconductors; and

detecting and/or discriminating said double-chained complex by means of at least one of electrical, magnetic, and optical changes on a surface of the biochip.

27. (New) The method of claim 26 further comprising a step of modifying with a label either during or after hybridization one or both of the biochemical specimen and the loop-structured probe nucleic acid, wherein said label is selected from the group consisting of magnetic particles, ceramic fine particles, and semiconductors, and wherein said modifying step takes place before the detecting/discrimination step.